

ANIMAL KEEPERS' FORUM



AUGUST 2008

**The Journal of the American
Association of Zoo Keepers, Inc.**

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Animal Keepers' Forum is published monthly by the American Association of Zoo Keepers, Inc., 3601 S.W. 29th Street, Suite 133, Topeka, KS 66614-2054. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Postage paid at Topeka, KS.

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Table of Contents

About the Cover/Information for Contributors.....	298
Scoops & Scuttlebutt.....	299 - 300
In Memorium ~ Tim Kurkowski.....	301
From the Executive Directort.....	302
Coming Events.....	304
Conference 2008 Update.....	305
A Snake in the Hand is Worth Two in the Bush, unless that snake in your hand is an Inland Taipan..... (and other lessons learned at the AAZK Venomous Animal Workshop).....	306
AAZK Announces New Members.....	307
Enrichment Options (<i>Kelp Kit for Penguins and Seabirds</i>).....	308 - 311
First Breeding of Blue-Winged Kookaburra (<i>Dacelo leachii</i>) at Houston Zoo, Inc.....	312 - 315
Book Reviews (<i>ZOOMility: Keeper Tales of Training with Positive Reinforcement; Amphibians and Reptiles of Georgia; and The Exotic Amphibians and Reptiles of Florida</i>).....	316 - 318
ATC Column (<i>Training Tips</i>).....	320 - 321
2007 AAZK Conference Proceedings Now Available for Downloading.....	321
Training Tales - Where You Can Share Your Training Experiences - Invitation to Contribute.....	322
Do You Want Fries With That? Python Immobilized After Eating Zoo Deer.....	322
Now Available - Crisis Management in Zoos - Dedicated AKF Issue for Sale.....	324 - 325
Flamingo Holding Floor Washer.....	326 - 328
Keeper Profiles DVD Order Information - Buy 'em while they last!.....	329
Conservation/Legislative Update.....	330 - 336



34th Anniversary - 1974 - 2008

MISSION STATEMENT

American Association of Zoo Keepers, Inc.

To provide a resource and a forum of continuing education for the animal care professional and to support zoo and aquarium personnel in their roles as animal care givers, scientific researchers, public educators and conservationists. To promote zoos and aquariums as cultural establishments dedicated to the enrichment of human and natural resources; to foster the exchange of research materials, enrichment options and husbandry information through publications and conferences which will lead to a greater understanding of the needs and requirements of all animals.

*This month's cover features April, a female giraffe (*Giraffa camelopardalis*) and her calf, Ayanna, at Lion Country Safari in Loxahatchee, FL. This pencil drawing by Ashleigh Kandrac, a Keeper IV in the hoofstock area, placed first in an art show fundraiser held by Lion Country Safari's Chapter of AAZK. This fundraiser proved to be a huge success and proceeds went to the animal charity of Ashleigh's choice which was a local wildlife sanctuary. This giraffe species, reaching heights up to 19ft, is the tallest terrestrial animal. A dominant bull will breed the females within the herd. After a gestation period between 14-15 months, a giraffe birth is an extraordinary event since the calf drops several feet to the ground below. The calf can stand up to 6.5 ft. tall and weight 200lbs at birth. Within hours the newborn calf will overcome several challenges including standing, walking and nursing. The dam is generally very attentive and protective of her calf at this vulnerable stage. The calf is weaned around a year of age and will generally stay with its mother for several more months. The giraffe feeds mainly on Acacia and Combretum trees, but will eat as many as 100 different plants depending on which are available at the time. Giraffes are native only to Africa. They used to be found throughout the dry savanna zones south of the Sahara Desert, but today have been eliminated from most of West African and the southern Kalahari range. However, they are still fairly common. Thanks, Ashleigh!*

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKE*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 785-273-9149; FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com< If you have questions about submission guidelines, please contact the Editor.

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the *AKE* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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AAZK website Address: www.aazk.org

BFR Website: <http://aazkbfr.org>

Scoops & Scuttlebutt



2008 Chapter Challenge Results

A HUGE THANK YOU to all the participants this year- it was the most successful Chapter Challenge yet!

\$350.00 Contributors

Henry Doorly
*Northern Lights
Puget Sound
Brookfield
*San Diego
Southern Ontario
Point Defiance
Greater Kansas City

\$500.00 Contributors

New Orleans
St. Louis
Little Rock
*Philadelphia

\$1250.00+ Contributors

Lincoln Park
*Galveston
Dallas

And thanks to the other Chapters for their donations!

Snake River
West Michigan

** Winners of the 2008 Chapter Challenge in their respective categories*

~from the 2008 AAZK Conference Committee

Looking Ahead? Time to Mark Your Calendars for 2009 in Seattle!



The 3rd International Congress on Zoo Keeping (ICZ) and the 36th American Association of Zoo Keepers National Conference will be held in Seattle, WA September 24-29, 2009. The joint conference is being hosted by the Puget Sound AAZK Chapter and the Woodland Park Zoo. Members from both AAZK and the ICZ are working together to mount this history-making event that is expected to draw zoo professionals from around the world. This is a conference that will have a unique international flavor and will offer many avenues for professional enrichment and colleague networking. For information see these websites: www.iczoo.org OR www.pugetsoundaazk.org

Gibbon Journal Available for Downloading

The fourth issue of the Gibbon Journal is available now. It can be downloaded in PDF-format from the website of the Gibbon Conservation Alliance (www.gibbonconservation.org).

The Gibbon Journal (ISSN 1661-707X) publishes original papers on all aspects of gibbon natural history and conservation. It is freely accessible via the Internet. The Gibbon Journal is published annually by the Gibbon Conservation Alliance.

Interested individuals are invited to submit manuscripts to the Gibbon Journal. Please visit the Journal's homepage and Instructions to Authors for article submission at www.gibbonconservation.org.

Articles from the Gibbon Journal Issue No. 4 include:

Thomas Geissmann: "Gibbon paintings in China, Japan, and Korea: Historical distribution, production rate and context"

Julia Ruppell: "The gibbons of Pu Mat National Park in Vietnam"

Zsófia Clemens, Björn Merker, and Mária Ujhelyi: "Observations on paternal care in a captive family of white-handed gibbons (*Hylobates lar*)"

Thomas Geissmann: "Inter-group conflict in captive siamangs (*Symphalangus syndactylus*)"

Thomas Geissmann and Brigitte Manella: "Steroid secretion in siamang (*Symphalangus syndactylus*) skin glands"

Eva Maria Eberl: "A primate 'motor theory of sound perception': Three case studies with gibbons"

~ from ZooNews Digest #545 July 7-11, 2008

ATTENTION PHOTOGRAPHERS !!

We would like to begin putting together a library of photographs to be utilized in *Animal Keepers' Forum* either as an occasional four-color cover or in conjunction with material inside the journal. We plan to gather this photo library electronically in jpg or tif formats. Past President Denise Wagner will be gathering and organizing this photo archive and photographers interested in submitting photos should send them to her at denise.wagner@aazk.org Photos should be high resolution and in either jpg or tif format. When sending, please include common and scientific name of species featured in photo. Each photo must be accompanied by a Photo Release Form that is available on the AAZK website. You may submit the form electronically to Denise or print it out, obtain required signatures and send by regular mail to Susan Chan, AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054 Attn: photo release.



Have You Sent AO Your E-mail Address Yet?

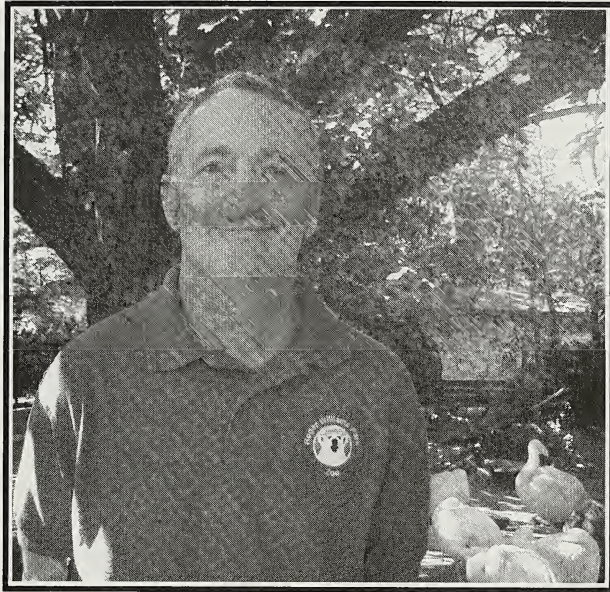
In order to better communicate with our members, and also save the Association the rising costs of mailings/postage, we are working to establish an AAZK member e-mail database. With such a database we would be able to send out electronic membership renewal notices, information about upcoming conferences, and other Association news. In order to make this work, we need your help.

Please send an e-mail to Barbara Manspeaker at aazkoffice@zk.kscoxmail.com with the words "AAZK Email Database" in the subject line. Please be assured that your e-mail address will not be shared with any other group or individual without your express permission. We are simply looking for ways to stay in touch with you as a member and to also help cut the costs of mailings and postage for the organization. It's all part of AAZK's continuing push to be more "green" in our administration. Thanks in advance for helping us achieve this cost-cutting goal.

New Bowling for Rhinos Yahoo® Group Formed !

There is a new yahoo groups email for Bowling For Rhino Coordinators. If you would like to be part of this email group, please email Barbie Wilson at rhinobarbie@hotmail.com. This lets us communicate with other BFR coordinators with questions about t-shirts, bowling alley prices, how to get more support from your zoo, etc.

In Memorium



Tim Kurkowski

February 22, 1960 ~ July 8, 2008

With deep sorrow we share the news of the passing on 8 July 2008 of longtime AAZK member Tim Kurkowski of the Roger Williams Park Zoo, Providence, RI. Tim was diagnosed with cancer and soon after doctors told him there was nothing more they could do except manage his pain. Tim had a zest for life that was with him to the end. After he was diagnosed Tim was adamant... "I am not going to let this get me down and it is not over until the fat lady sings".

He was known for his amazingly funny wit and humor. "Timski" as his friends called him, was a graduate of the Santa Fe Community College Teaching Zoo in Gainesville, FL. He began his career as a Zoo Keeper at the Topeka Zoo where he was active in the AAZK Chapter there. He had worked as a Keeper, Sr. Keeper and Registrar at Zoo Atlanta and as an Advanced Animal Keeper at the Kangaroo Conservation Center, Dawsonville, GA. In January of 2006 Tim got his dream job as Registrar at the Roger Williams Park Zoo. Besides, AAZK, Tim also held professional memberships in AZA and ZRA.

If you wish to remember him by memorial donation, Tim was enamored with a Parrot Rescue Center (<http://www.fosterparrots.com>) and an annual Tim Kurkowski Memorial Scholarship for the Institutional Records Keeping (IRK) course taught by AZA has been established at the Roger Williams Park Zoo. In a message to Zoo Registrars Association members, ZRA President Rae Lynn Haliday noted that this scholarship fund "appropriately emulated the spirit of continual self-improvement and professional achievement that Tim consistently and passionately exhibited throughout his zoological career". To make a memorial donation to this fund, please make checks payable to Rhode Island Zoological Society (Tim Kurkowski Memorial Scholarship fund) and mail to: Roger Williams Park Zoo, 1000 Elmwood Ave., Providence, RI 02907-3659. Attn: Finance Dept.

On a personal note, I knew Tim during his time at the Topeka Zoo and will always remember him complaining about the large rats behind the cat line. Tim, a gentle man by nature, would trap and release them to irritate him another day. ~*Susan Chan (Contributions to this memorial came from Rachél Watkins Rogers, Zoo Registrar/Miami Metrozoo and Rae Lynn Haliday, ZRA President.)*


From the Executive Director . . .

It's that time of the year again, the time just prior to conference where plans are hopefully being made to attend this important educational event. Hopefully the wallet is not too empty, the credit card maxed out, or the Institutional purse strings too tight for you to join your peers in Salt Lake City.

I am proud to report that our membership is part of a financially healthy and growing organization. The ability to convey information, obtain information and participate in real-time discussions on animal husbandry techniques through the Association's web page has stabilized and is slowly increasing our membership base.

As we work towards goals and objects set forth by the Board of Directors for growth and communication, we will be executing change. Change in the form of communication. Change in the form of business practices, and change in the form of dissemination of information. In 2008, AAZK developed a real-time method for our membership to keep up on current events in the profession. Email notification with information on critical events in our profession will now be sent to every member*. Our job is to ensure that the information is pertinent and not subject our membership to mass spam emails.

As always, the columns authored by either myself or Shane Good, AAZK President, are written to inform, but more importantly, to stimulate dialog. If we need to change something, let us know. It's the only way we can improve the product for which you pay.



Ed Hansen, AAZK Executive Director
Tucson, AZ

* Editor's Note: In order for you to receive this information and important updates and notifications from the Association, you need to be on our email database. If you have not submitted your email address as yet, please do so to Barbara Manspeaker at aazkoffice@zk.kscoxmail.com. Please put Member Email Address in the Subject Line. It is also important to remember to let us know of any email address changes you have - this also goes for mailing addresses for your *Animal Keepers' Forum*. The AKF is sent nonprofit bulk rate and is NOT automatically forwarded by the Post Office. Not advising us of address changes may mean missing out on one or more issues. We have a couple of special issues planned this year that you won't want to miss. So take a moment and send us your email address and remember to let us know when you relocate. Communication is a two-way street and we can't communicate if we can't reach you. Thanks in advance for your cooperation.





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Coming Events

35th Annual American Association of Zoo Keepers National Conference - September 24-28, 2008 in Salt Lake City, UT. The guiding theme, "Elevating Animal Care", will focus on concepts that highlight professionalism, creativity and initiative in the realm of conservation, education and animal husbandry. For more information, please visit www.utahaazk.org, contact the Utah Chapter AAZK at utahaazk@hoglezoo.org or call (801) 584-1784.

Association of Zoo Veterinary Technicians 28th Annual Conference - October 2-6, 2008 at Buttonwood Park Zoo in New Bedford, MA. For more information visit www.azvt.org

2008 Elephant Managers Association Conference - October 3-7, 2008 in Orlando, FL. This meeting will focus on the challenges, experiences and achievements of successful captive management programs. The program organizers, Hosts are seeking presentations addressing programs for training qualified elephant personnel, the link between captive management programs and range country populations, as well as research and conservation. See <http://www.elephant-managers.com/> for further information.

The 2nd SSP Orangutan Husbandry Workshop - October 12 -14, 2008 at the Saint Louis Zoo, St. Louis, MO. This workshop will focus on the care and management of the orangutan in zoological parks and sanctuaries. The workshop will bring together orangutan caregivers and managers, researchers, and field biologists to share and disseminate the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of orangutans. Please contact Terri Hunnicutt at pongopan@yahoo.com or hunnicutt@stlzoo.org for further information

2008 Zoological Registrars Association Annual Conference - October 22-25, 2008. Hosted by The Saint Louis Zoo. The Sheraton Westport Chalet has been selected as the conference hotel and they have offered us the government rate of \$106 per night. The hotel provides free airport shuttle and parking. If you have any questions, please do not hesitate to contact Rae Lynn Haliday at haliday@stlzoo.org or at (314) 781-0900 x 372.

Elephant Conservation & Research Symposium - November 11-13, 2008 at the Nong-Nooch Tropical Garden & Resort in Pattaya. For further information contact Dr. Harald M. Schwammer at h.schwammer@zoovienna.at or see their website at <http://www.ekephantconservation.org/2008symposium.php>

The 5th Crisey Zoological Nutrition Symposium - December 12-13, 2008 at the North Carolina State University School of Veterinary Medicine. This year's focus will be "Obesity in Zoological Species". For registration and a skeleton schedule please view www.cvm.ncsu.edu/conted/zoonutrition/

Zoos and Aquariums Committing to Conservation - January 23-26, 2009. Hosted by the Houston Zoo, Houston, TX. ZACC is a bi-annual event that promotes

the role of zoos and aquariums in supporting conservation activities worldwide, both at their institutions and in the field. Bringing together individuals from different countries and disciplines, ZACC conferences help to build a stronger and more effective global network for wildlife and habitat conservation, and to establish direct links to zoos, aquariums, and their constituencies. For info contact: <http://www.houstonzoo.org/zacc> or conservation@houstonzoo.org

International Association of Avian Trainers and Educators 17th Annual Conference - February 24-28, 2009 hosted by the Cincinnati Zoo & Botanical Gardens. "09 in Nati" will feature papers, posters, site visits, roundtables, vendors and workshops. Topics include avian behavior, training, husbandry, conservation, strides in veterinary care, as well as show presentation, production and educational content. For further info please visit www.iaate.org or contact Eddie Annal at ed.annal@cincinnatiavians.org

Call for Papers & Posters: Share your knowledge, expertise and experience with IAATE members. We are soliciting papers on: Training and Behavior; Shows and Education, conservation and Research; and Animal Management and Veterinary Medicine. Each paper will be allotted 30 minutes (20 presentation/10 minutes Q&A). Posters will be on display throughout the conference with time allotted to meet the authors. Electronic submission in MS Word preferred.. Submit abstracts **by 1 October 2008** to: Cassie Malina, 414 Broadway Ave., Orlando, FL 32803; email: CMa924@aol.com; phone: 407-497-6411.

Prosimian Husbandry Workshop - April 30- May 2, 2009. Hosted by the Cleveland Metroparks Zoo. The workshop will emphasize group discussion of captive prosimian husbandry and management issues. Look for registration, lodging, and workshop information at the workshop web-page, www.clemetzoo.com/prosimianworkshop starting August 2008.

The 9th International Conference on Environmental Enrichment - May 31 - June 5, 2009 in Torquay, Devon, UK. First Call for papers and Registration. Go to www.reec.info for details.

Neotropical Primate Husbandry, Research, and Conservation Conference - October 13-15, 2009 in Chicago, IL. Hosted by the Brookfield Zoo. This conference will focus on a variety of topics pertaining to neotropical primates and will bring together staff from zoological parks, sanctuaries, and universities, as well as field researchers and range country biologists to share the most current information on husbandry, conservation, and emergent issues pertaining to captive and wild populations of neotropical primates. The workshop will include three days of presentations, a poster session, as an icebreaker, silent auction, and banquet. Additional information will be made available in late 2008. Please contact vince.sodaro@czs.org for additional information.

Post Your Coming Events Here
email to: akfeditor@zk.kscsoxmail.com



DON'T MISS OUT! The 35th Annual AAZK National Conference Salt Lake City September 24-28, 2008

Registration

This year registration will be offered online **only**. To register click the registration link on our website www.utahaazk.org. You will receive an email confirmation of completed registration.

Member (AAZK, ABMA, ICZ): \$195*

Nonmember: \$245

*** A late fee of an additional \$50 will be charged after August 1, 2008.**

Accommodations

The Salt Lake City Marriott City Center (220 South State Street) is the newest full service Marriott hotel in the Salt Lake City area. Room rates are \$139.00 per night single or double. These rates are only guaranteed until September 1st! Book your room online through our conference website www.utahaazk.org. For more information call (801) 961-8700 or visit www.marriott.com/hotels/travel/slccc-salt-lake-city-marriott-city-center

Transportation

For transportation from the Salt Lake City Airport to the Marriott City Center, we recommend Express Shuttle, who are offering a special rate of \$6.00 per person one way. Reservations can be made at 1-800-397-0773. Taxi fare runs approximately \$25 one way to the hotel.

Program

The tentative program schedule is now posted to the website www.utahaazk.org - check out all the great presentations, workshops and wonderful speakers!

Photo Contest

Enter in the 2008 AAZK National Conference Photo Contest! Entry fee is only **\$10**. The top three entries will win fabulous prizes. **ONLY** one entry per delegate. Photos must be 8" x 10", including any matting and they must be taken from the public's perspective to maintain a naturalistic view. All photos from the contest will be donated to the Silent Auction, so you can purchase your favorites. Check out www.utahaazk.org for details.

SEE YOU IN SEPTEMBER!!

Any Questions? Email

utahaazk@hoglezoo.org or Website www.utahaazk.org

A snake in the hand is worth two in the bush,
unless that snake in your hand is an Inland Taipan. . .

(and other lessons learned at the AAZK Venomous Animal Workshop)

By Shane Good, AAZK President

The first AAZK Venomous Animal Workshop occurred May 16-18, 2008 in Frederick, MD at Frederick Community College. The workshop was a collaborative effort of AAZK, Catoctin Wildlife Preserve, and the Global Wildlife Trust. The workshop was attended by 27 students representing 19 institutions from around the country. The course was led by 13 instructors with expertise in the fields of venomology, snakebite response and treatment, nutrition, zoology, and venomous animal husbandry, exhibiting, and protocols.

I had the opportunity to personally attend the workshop and was overwhelmed with the amount of information available to students. The instructors were not only knowledgeable, but also interacted well with the students and gave great presentations. There were also many opportunities for networking and sharing information with colleagues. At the conclusion of the course, students completed an exam, and were awarded an AAZK Certificate of Completion and one CEU from Frederick Community College.

Highlights of the course included a session by Dr. Daniel Keyler, a national expert on toxicology, antivenom, and snakebite treatment. Jessi Krebs, a supervisor at Henry Doorly Zoo in Omaha, presented on facilities, exhibits and enclosures. Dr. Sam Seashole gave a very popular presentation on nutrition for venomous snakes. Kristen Wiley and Jim Harrison, from Kentucky Reptile Zoo which boasts over 1000 venomous snakes, presented on many different aspects of venomous animal care. Flavio Morrissiey gave an interesting lecture on operant conditioning for venomous animals. A highlight for everyone included live handling demonstrations by Al Cortiz and Dan Middaugh from Catoctin Wildlife Preserve. Students also enjoyed a special presentation on the past, present, and future of herpetology by Jim Murphy, Research Associate with the Smithsonian. In addition to all of the valuable information presented, students also enjoyed the hospitality of the Catoctin Wildlife Preserve, including an icebreaker, dinner banquet, lunch and zoo tour, and a final closing BBQ at the zoo. A special thanks goes out to Richard Hahn, Director of Catoctin Wildlife Preserve, and his entire staff, for organizing such a great event.

The 2008 Venomous Animal Workshop focused on snakes, but future courses should include other venomous animals as well, such as fish and invertebrates. Based on a survey response, students seem to prefer a fall or winter course, so we are considering dates in 2009 or 2010 for a second workshop. Stay tuned for more information on this exciting AAZK opportunity in continuing education.

Professional development is a major focus of your Association. The AAZK Professional Development Committee is working on ideas to expand their continuing education programs. Our next course offering is the Neonatal Symposium at the 2008 AAZK National Conference in Salt Lake City. Introduction to this symposium will include a full paper session open to all conference attendees, dedicated to neonatal care. It will discuss the history and future of infant animal care in a zoological setting. The paper session will be followed by a concurrent, full day, closed workshop (lunch included) on developing hand-rearing protocols for a number of species-specific animal groups; neonatal nutrition; and pathology/medical concerns.

Is there a topic you want more information about? Do you have an idea for a professional development course or workshop? Need some credits to finish that degree? Contact me at shane.good@aazk.org. Until next time, stay safe and try to avoid the wrong end of all things venomous.

AAZK Announces New Members

New Professional Members

Kimberly Lenhardt, **Roger Williams Park Zoo (RI)**;
Jessica Kordell, **National Zoo's Conservation and Research Center (VA)**; Margaret Tosches, **Maryland Zoo in Baltimore (MD)**; Kathryn Ciavolelle and Julie Fazio, **The Zoo in Northwest Florida (FL)**; Susan Stevens, **Central Florida Zoological Park (FL)**; Jennifer Hershey, **Disney's Animal Kingdom (FL)**; Monica Zabala, **Miami MetroZoo (FL)**; Angela Maxwell, **Nashville Zoo at Grassmere (TN)**; Lauren Caviezel, **Hattiesburg Zoo (MS)**; Rickard Kirk IV, **Detroit Zoo at the Belle Isle Nature Zoo (MI)**; Andy Van Laan, **Lincoln Park Zoo (IL)**; Kate Reed, **St. Louis Zoo (MO)**; Jennifer Chapman, **Caldwell Zoo (TX)**; Kristen Barnaby, **Fossil Rim Wildlife Center (TX)**; Jessica Rautio, **Frank Buck Zoo (TX)**; Elizabeth Foster, **Moody Gardens (TX)**; Elizabeth Kellerman, **Abilene Zoo (TX)**; Elise Ward, **Denver Downtown Aquarium (CO)**; Jerry L. Tuttle, **Wings of Freedom Animal Assisted Activities (NM)**; Sara Mellard and Janice Thompson, **The Living Desert (CA)**; Shawn Harrold, **Folsom City Zoo Sanctuary (CA)**; and Deserrai Buunk, **Toronto Zoo (Ontario, Canada)**. Beginning with the March 2008 issue of *AKF*, we no longer list the names of those Professional Members who do not list their facility on their membership application.

Renewing Contributing Members

Kathryn Bilyk, Keeper

Ross Park Zoo, Binghamton, NY

Vernon N. Kisling, Jr.

High Springs, FL

Steven M. Wing, Curator

Louisville Zoo, Louisville, KY

Judy Stickler

Everett, WA

Gretchen Ziegler, Zoo Manager

Sequoia Park Zoo, Eureka, CA

Renewing Institutional Members

Busch Gardens, Tampa, FL

Glenn Young, VP of Zoological Operations

Frank Buck Zoo, Gainesville, TX

Susan Kleven, Director

Reid Park Zoo, Tucson, AZ

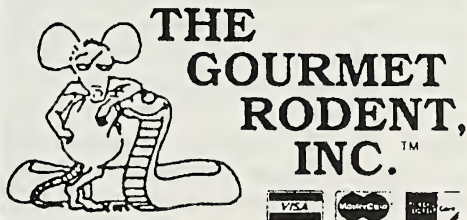
Susan Basford, Director

Hillcrest Park Zoo, Clovis, NM

Herschel Arnold, Director

Micke Grove Zoo, Lodi, CA

Ken Nieland, Director



RATS AND MICE

Bill & Marcia Brant

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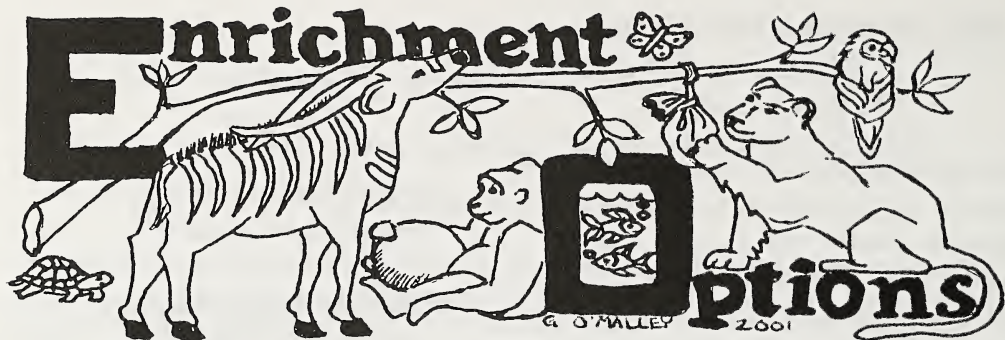
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EO Editor - Rachel Daneault, Disney's Animal Kingdom

Kelp Kit for Penguins and Seabirds

*By Kristin Dvorak, Assistant Lead Keeper, Outdoor Bird Area
and Dave Bernier, Curator of Mammals
Lincoln Park Zoo, Chicago, Illinois*

Built in 1981, Lincoln Park Zoo's Kolver Penguin/Seabird House is home to a variety of penguin and seabird species. The penguin exhibit houses chinstrap, rockhopper and king penguins while Atlantic puffins, tufted puffins, razorbills and common murres reside in the seabird exhibit. When determining ways in which to enrich the birds and enhance the visitor experience at the zoo, we looked at the natural history of these species. Since several of the species housed at this facility come from areas where kelp beds naturally occur, we decided to provide their exhibits with artificial kelp plants.

The addition of artificial kelp would provide some complexity for the birds as well as add some color and visual interest to the area. As we looked into purchasing artificial kelp plants from professional exhibit fabricators, we found that most of them did not fit our needs. Their ability to stand up to manipulations by the birds was questionable, they were not naturalistic in appearance, they were too short for our exhibit needs and/or they were too expensive. Therefore, we decided to build our own artificial kelp plants.

Our goal was to find a product that was inexpensive, naturalistic in appearance, durable for all species, easy to add and remove from the exhibit, and enriching. We also wanted this to be something that could be added or moved within the exhibit for novelty so that it could be added to the enrichment rotation for the birds in this building. Below is a description of how we developed the artificial plastic kelp (referred to as kelp for the rest of the paper).

How to make the kelp:

- Cut roller shade into three-inch wide strips that vary from three to six feet in length (you will need to cut two of the same strips in order to conceal the tubing).
- Spray paint the "inside" of both pieces.
- Cut tubing to appropriate length (depending on how long the roller shade strips are).
- Plug both ends of the tubing with the caulk.
- Lay roller shade pieces so that the spray painted pieces are touching each other and the tubing is sandwiched in between. (see Figure 1 for side view).

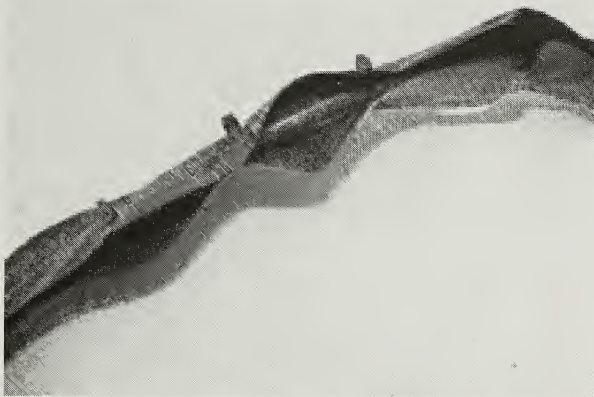


Figure 1: Side view of kelp.

(Photo by K. Dvorak)

- Make small cuts in the roller shade on both sides of the tubing and secure it by placing a cable tie through the small openings. Use cable ties every four-six inches down the strips.
- Spray paint one side at a time.
- Make slits approximately three to five inches long in the deck matting and arrange the kelp pieces accordingly.
- Each strip was placed through the slits and secured using a one-inch machine screw, with a washer on top and a washer with a nut on the underside (see Figures 2 & 3 for picture of kelp out of the water and in the water).

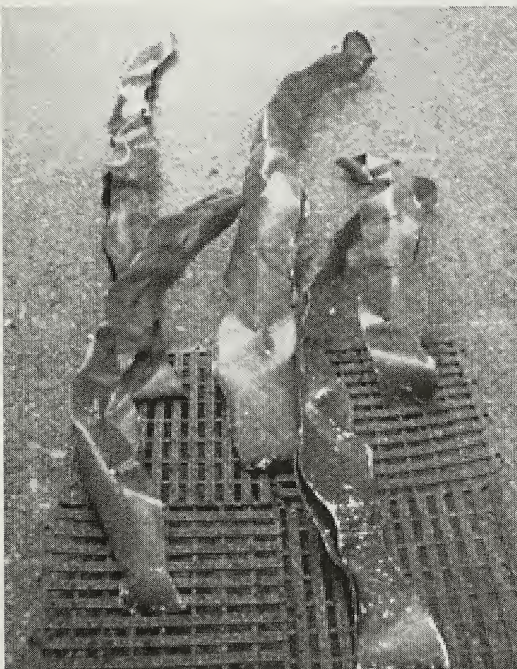


Figure 2: View of kelp out of water.

(Photo by K. Dvorak)

We encountered a few challenges. Initially, it was difficult to find products that could withstand the birds' manipulation, pass veterinary screening of their MSDS, and be buoyant enough to wave in the water once the base of the kelp was weighted down. It was a relief when we determined that the materials listed above adhered to all of these requirements. Even when the materials were determined, concealing the clear tubing became a problem as paint wore off. In the early phase, this was a matter of only a few days. We fixed this by adding a back to the kelp, making the kelp double-sided. This particular spray paint does come off in certain areas of the kelp and needs to be touched up about every 12 weeks. Finally, since the matting does not really blend in well with the floor of the pool, we used large rocks or stones to cover and weigh down the matting. A more permanent method of concealing the matting to make it more naturalistic would be to epoxy small rocks to the matting, but this has not been done with our current kelp.

pieces. We chose not to epoxy the rocks to the matting at this time, but we may add these in the future. The kelp is typically added, moved or removed during our pool drops.

Although no systematic data was taken, we did many observations to assess the birds' behavior in the presence of the kelp. First, there did not appear to be any negative responses from the birds when the kelp was initially added to the exhibit or at any point. The amount of time that they swam did not appear to change in the presence of the kelp. The kelp was strategically placed in the pool so as to not block entrance and exiting locations for the birds, but instead to modify their swim paths. The penguins and seabirds are often observed swimming around the kelp and have occasionally been observed manipulating it with their bills (See Figures 4 & 5 for pictures of penguins with kelp on exhibit).



Figure 3: View of kelp in water.
(Photo by K. Dvorak)

Kelp Kit Supply List:

• 100 feet of 1/4" (inside diameter) clear, flexible plastic tubing	\$23.00
• One roll of vinyl roller shade, ultra-12 mil room darkening, 37 1/4" width x 78" height	\$17.00
• Bag of 100 small cable ties (white or clear)	\$ 4.00
• Three cans of Krylon® Fusion spray paint (hunter green, spring green and sunbeam)	\$10.00
• One pack of 12" x 12" interlocking tiles.	\$10.00
• Tube of clear siliconized acrylic caulk	\$ 4.00
• Bolts, nuts and washers	\$ 5.00
Total	\$73.00

Suppliers:

1/4" (inside diameter) clear, flexible plastic tubing number 9530.

- Ace Hose & Rubber Company, 1-888-223-4673, www.acehose.com

Vinyl Roller Shade, Ultra – 12 mil room darkening,

100 small cable ties,

12" x 12" Multy interlocking tiles (10 per box),

10.1 oz GE clear siliconized acrylic caulk, & Bolts, nuts and washers.

- Home Depot

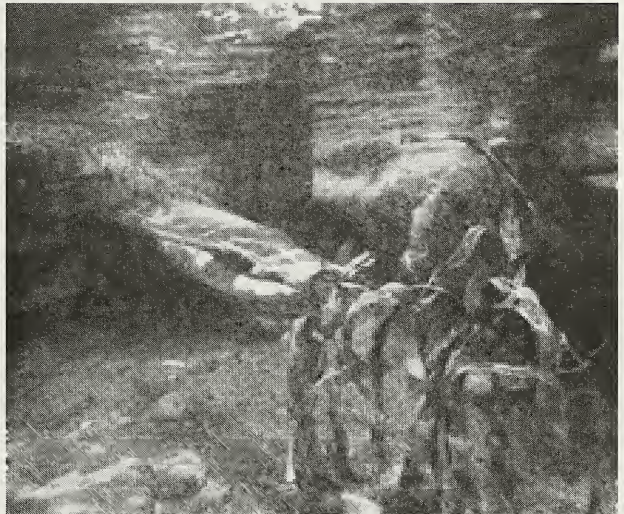
Krylon® Fusion spray paint (colors: hunter green, spring grass, and sunbeam).

- Wal-Mart and Ace Hardware



Figure 4: Kelp on exhibit with rockhopper penguin
(Photo by G. Neise)

Figure 5: Kelp on exhibit with king penguin
(Photo by G. Neise)



Acknowledgements:

We would like to thank Megan Ross, Ph.D., for her support for this project and her editorial assistance. We would like to thank the Outdoor Bird Area keepers for their support of this project: Chris Fuehrmeyer, Lauren Brown, Larry O'Connor and Marissa Elizalde. We would like to thank Robyn Barbiers, D.V.M., and James Seidler for their editorial assistance with this paper. We would like to thank Greg Neise for some of the photographs included in this paper.

Scientific names for species mentioned in this article: Chinstrap penguin (*Pygoscelis antarcticus*); Rockhopper penguin (*Eudyptes chrysocome*); King penguin (*Aptenodytes patagonicus*); Atlantic puffins (*Fratercula arctica*); Tufted puffins (*Fratercula cirrhata*); Razorbills (*Alca torda*); and Common murrelets (*Uria aalge*).

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit material for the Enrichment Options Column. Look in the January 2004 issue of AKF for guidelines for articles acceptable for this column's format or contact the editor at akfeditor@zk.kscoxmail.com for a copy of the guidelines. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054, USA. Eds.)

First Breeding of Blue-Winged Kookaburra (*Dacelo leachii*) at Houston Zoo, Inc.

By Charlona Ingram, Senior Keeper
Bird Department, Houston Zoo, Inc.
Houston, TX ~ April, 2008

Introduction

The Blue-winged Kookaburra (*Dacelo leachii*) is a slightly smaller, more colorful cousin of the more well-known Laughing Kookaburra (*Dacelo novaeguineae*). Found in open woodland and wooded savanna in Northern Australia and Southern New Guinea, it is considered common over most of its range. Although common in Australia, the Blue-winged Kookaburra is not well-represented in North American Zoos and can only be found at three institutions, including Houston Zoo, Inc. (HZI).

The Bird Department at HZI currently houses one breeding pair of Blue-winged Kookaburra in an off-exhibit area and one juvenile male on exhibit. Our pair was imported in June 2003 from France by Miami MetroZoo. They were housed at Miami Metro in their Wings of Asia exhibit until the Kookaburras began harassing the smaller birds in the Aviary. The HZI Bird Department received the pair on breeding loan in October 2005.

Housing

The Kookaburras were placed in the off-exhibit area in their own enclosure in hopes of breeding them. Their 1" x 1" wire enclosure is 20' long x 6' wide x 8' tall [6.09m x 1.82m x 2.43m]. The substrate is pea gravel and the enclosure is planted with two tall ficus trees. Two large logs are provided on the ground for pulverizing the Kookaburras' prey. The adult Kookaburra diet consists of hopper-size mice, anoles, and chicks.

Once comfortable in their new home, the birds exhibited territorial and bonding behaviors. Several times per day, they called loudly back and forth to each other. They also killed any small animal that happened to get into their enclosure, including frogs, toads, large beetles and lizards. Some prey items were eaten and some were left on the ground.

Blue-winged Kookaburras are sexually dimorphic. The female is larger and has a longer, rufous tail, while the male's tail feathers are purplish/blue. We could also tell our pair apart by temperament. The male is much more territorial. He may stand his ground and attempt to "stare you down." If this fails, he has been known to fly at the keepers and hit them in the back of the head. In the wild, this behavior can be used to pith other animals.

Breeding

In the wild, Blue-winged Kookaburras nest in trees or excavated termite mounds. In late January 2006, we provided two wooden nest boxes. One nest box (12" wide x 18" tall x 12" deep/30.48cm x 45.7cm x 30.38cm) was hung vertically at the back of the enclosure. A second box (12" wide x 12" tall x 18" deep/30.48cm x 30.48cm x 45.7cm) was placed horizontally by the door of the enclosure. Both boxes were packed with pine shavings. Both birds showed interest right away by perching on the boxes and hopping in and out. On 4 February, the male began excavating the box by the door of the enclosure in earnest. Pine shavings were scattered under the box, and he would spend hours inside the box, knocking on the walls and floor. Finally, there was only a thin layer of shavings in the box, pulverized mostly into dust.

In March, 2006, the male began offering food to the female. Both birds spent a large amount of time in the box. If the box was approached, the female would shoot out and fly away. However, the male

would sit in the box opening and defend the nest. Keepers started to wear a hard safari hat when cleaning the enclosure. We also put up large palm fronds around the nest box for more privacy. The palms were placed around the box to block the view into the keeper hallway and into the adjacent enclosure.

The first egg was found 30 March, with the second egg on 1 April. Published clutch size for this species is two eggs; however, we found a third egg on 7 April. The third egg was weighed and measured: 42.16 cm long x 34.13 cm wide [16.6" x 13.43".] and weighing 25.7g [0.09oz.]. The oblong eggs were white in color.

Incubation

The Blue-winged Kookaburra incubation range is 25-26 days. Both of our birds took turns sitting in the box; however, the male seemed to do most of the incubating. He could be seen sitting with his head in the nest box opening most of the day. He also continued to pound on the inside of the box throughout incubation.

On 20 April, the eggs were candled. One of the embryos was dead, but the other two eggs showed strong veining. On 24 April, we candled the eggs again. One of them was internally pipped. On 26 April, that egg was externally pipped and the other was internally pipped.

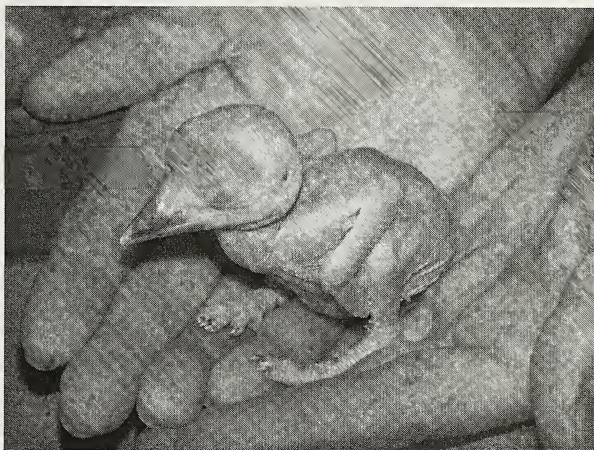
The first chick (Chick A) was found fully hatched at 0715hrs on 27 April when the nest was checked. When removed from the nest to be weighed, the chick bumped the keeper's hand, grabbed a finger, and tried to gulp it down with a healthy feeding response. It weighed 19.3g [0.68oz.] and was dusky pink in color. Its sibling (Chick B) hatched on 29 April and weighed 20.6g [0.72oz.]. At this point, Chick A had already gained weight and weighed 26.2g [0.924oz.].

Chick Rearing

Both parents brooded the chicks. The male was very protective of the nest box and would defend it by flying at the keepers. It took two keepers to remove the chicks for weighing – one keeper to ward off the male with a net while the other keeper climbed up to the nest box.

Pinky mice were offered as the initial chick diet. The keepers learned to offer the adult diet first to fill up the parents, then to offer the pinkies to be fed to the chicks; otherwise, the parents would eat all the pinkies even if their adult diet was available. At first,

it seemed the female was doing most of the chick feeding, but over time the male seemed to take over the job and did most of the feeding duties. Both adults would vocalize softly to the chicks upon entering the nest to feed them.



Chick at 7 days old (Photo by Chris Holmes)

By Day 6, we began to feed small rat pups instead of the pinkies, as the chicks were determined to be large enough to handle bigger prey without choking. The parents would pound the rat pups on a perch before offering them to the chicks. Food items were offered to the birds three times a day.

Both chicks were weighed every day at first to determine if they were gaining weight. When removed from the box, the chicks were very active. They would both vocalize and bite when handled.



On Day 12, Chick A's eyes began to open and, by Day 14, it was covered in pin feathers. By Day 22, it was able to hop away from the keepers while in the nest box and, by Day 26, the wing feathers had begun to erupt from their shafts.

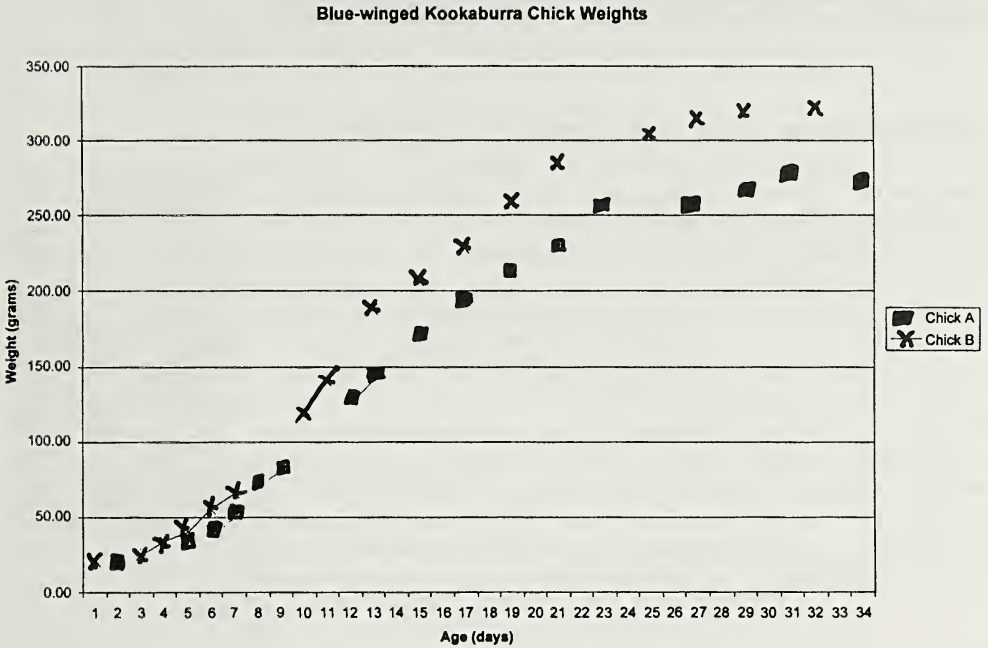
On Day 4, Chick B began to overtake Chick A in weight. This weight difference continued throughout the rearing process, with Chick B always weighing more. Interestingly, Chick B turned out to be a female, which are larger than the males in adulthood.

Chicks at 14 & 16 days old (Photo by Chris Holmes)

**Weight Gain for
Kookaburra Chicks
(in grams)**

Day	Chick A	Chick B
0	19.3	20.6
1	19.3	
2	26.2	24.7
3		33.5
4	33.2	40.0
5	42.9	55.0
6	53.2	65.8
7	74.5	
8	82.2	
9		118.1
10		140.4
11	127.2	
12	144.3	188.3
14	170.8	207.4
16	194.5	228.8
18	212.7	258.5
20	229.3	285.2
22	255.5	
24		304.0
26	258.0	314.7
28	262.5	319.8
30	277.9	
31		322.0
33	272.5	

Percentage Weight Gain Chart



Fledging

Chick A left the nest box 3 June after 37 days in the nest. The chick perched on the logs on the bottom of the enclosure, usually with a parent close by. On 9 June 9, it weighed 264g [0.582lbs.]. Chick B left the box on 7 June and weighed 308g [0.679lbs.] on 9 June.

Both parents continued to feed the chicks. At this point, the parents would take a large food item, pulverize it into a long, stringy, unrecognizable piece of meat, and then stuff it in a chick. Both parent and chick would vocalize while this occurred.

We were able to visually sex the chicks on 30 June at approximately two months of age. Chick A was determined a male by his dark blue tail feathers. Chick B was determined a female by her barred, brown tail feathers and greater weight as compared to her sibling.

Conclusion

Our Blue-winged Kookaburra pair seem to breed well in captivity. They have had two more successful clutches since the first breeding and one of their offspring is on exhibit next to our two female Laughing Kookaburra. This allows guests to compare two very large Kookaburra species and to enjoy their vocalizations.



Book Reviews

ZOOMility: Keeper Tales of Training with Positive Reinforcement

Author: Grey Stafford, Ph.D. Foreword: Jack Hanna

Editor: Denise DeWitte & Kim Nguyen Ph.D. Illustrator: Gary Bennett

An iReinforce.com book (available at amazon.com)

ISBN 978-0-979681-00-4 Printed in the United States

143 pgs. Paperback \$14.95

*Review by Angela Cecil Binney, Co-Chairperson
AAZK Animal Training Committee
Animal Keeper, Disney's Animal Kingdom
Lake Buena Vista, FL*



ZOOMility: Keeper Tales of Training with Positive Reinforcement is a great read for both novice and professional animal trainers. This book is full of interesting accounts of the author's animal training experience, which not only teach the principle behind each story, but also provide plenty of entertainment. The principles discussed are applicable to all types of training. This taxonomic diversity illustrates that animal training principles are not species specific.

The premise behind *Zoomility* is using only positive reinforcement to shape and maintain behavior. Most zoo trainers are attracted to this philosophy; however, practicing it absolutely challenges our skill and patience. The concepts outlined in this book encourage us to fully examine our own training styles with an open mind (and a little humility, perhaps). It promotes focusing on behavioral success rather than failure and behavioral reinforcement rather than 'correction'. The author, Dr. Grey Stafford, explains the reason behind his success focused training philosophy and how it can work to our advantage. He also offers tips for what to do if the animal responds with behavior that we do not wish to reinforce.

Dr. Stafford breaks the training process down into something he calls 'the 3 Rs': request, response, reinforce. The way he phrases the word 'request' (as opposed to 'command', 'cue', 'signal' or 'stimulus'), further emphasizes the humility he refers to in the title. His style of training does not suggest dominance over an animal, but rather a working relationship. He examines details of each of the '3Rs' and how each works in the training process.

Particularly useful are the four categories the author uses to measure behavior: duration, energy, frequency and topography (DEFT). Zoo trainers typically think of behavioral approximations as steps toward an end goal. Our training plans often have steps numbered 1, 2, 3, etc, leading to a final approximation. The 'DEFT' concept is more complex, allowing the trainer to fine tune behavior by seeking to reinforce, and therefore encourage, desired aspects of each of these factors. For example, reinforce high energy or fast approach for behaviors that require speed or height; low energy for stationary calm behaviors. These allow the trainer to maximize results and avoid training more than one factor at a time. Additionally, he explains exactly how and when to reinforce each aspect to increase success.

Also included are useful training plans for many popular behaviors, from basic foundation behaviors to advanced medical and cooperative teamwork behaviors. Many of these plans related to domestic dog owners in particular. However, the concepts included in each plan are applicable to just about any zoo animal imaginable. For example, the method for training an elephant to 'stay' or hold its

position are the same as training a dog. The animal is just much larger and receives a different type of reinforcement.

The book concludes with two chapters about 'problem' animals and how to handle them, using only positive reinforcement. The case studies and stories that accompany them are priceless to those of us that can identify with these scenarios. The use of alternate reinforcement strategies is well covered, such as using a *least reinforcing scenario* (LRS), *differential reinforcement of any other behavior* (DRO) and *differential reinforcement of an incompatible behavior* (DRI). These supply very valuable tools for trainers that find themselves in challenging situations that may tempt them to stray from the positive reinforcement philosophy.

For zoo and aquarium trainers in particular, this book offers a fresh perspective to what we already do. Positive reinforcement training has been applied in the zoo and aquarium field for a very long time. There is now a wider application than ever before, with more species benefiting from these techniques. Zoomility reinforces what we already know and practice, but it also points to alternate ways to examine behavior and reinforcement, as well as methods we can use to improve our techniques. It also shows us how to swallow our pride, step from behind the comfort of our training egos and learn to become better at what we love so much. In other words, it teaches us to train with a little "Zoomility".



NEW BOOK

Amphibians and Reptiles of Georgia

Editors: John B. Jensen, Carlos D. Camp, Whit Gibbons, & Matt J. Elliott
2008 University of Georgia Press (1-800-266-5842)

ISBN 978-0-8203-3111-9 Paper \$39.95

7 1/2" x 10", 478 color photos, 3 tables, 182 maps, 1 figure, 24 line drawings

Amphibians and Reptiles of Georgia makes accessible a wealth of information about 170 species of frogs, salamanders, crocodilians, lizards, snakes, and turtles. Throughout, the book stresses conservation, documenting declines in individual species as well as losses of local and regional populations. Color photographs are paired with detailed species accounts, which provide information about size, appearance, and other identifying characteristics of adults and young;

taxonomy and nomenclature; habits; distribution and habitat; and reproduction and development. Typical specimens and various life stages are described, as well as significant variations in such attributes as color and pattern. Line drawings define each group's general features for easy field identification. Range maps show where each species occurs in Georgia county by county, as well as in the United States generally. State maps depict elevations, streams, annual precipitation, land use changes, physiographic provinces, and average temperatures. The book includes a checklist, a chart of the evolutionary relationships among amphibians and reptiles, a list of the top ten most reported species by major group, and a table summarizing the diversity of amphibians and reptiles in the state's five physiographic provinces. *Amphibians and Reptiles of Georgia* is an authoritative reference for students, professional herpetologists, biologists, ecologists, conservationists, land managers, and amateur naturalists.

Review from: The Center for North American Herpetology, Lawrence, Kansas <http://www.cnah.org>

CNAH Note: For greater accuracy, comprehension, and ease of use, this book uses the traditional, standardized common names for North American species maintained by Collins & Taggart (2002. *Standard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians*. Fifth Edition), published by The Center for North American Herpetology (available as a pdf at the CNAH web site), and updated daily online, the only such listing available on the internet worldwide.

Still Available

The Exotic Amphibians and Reptiles of Florida

By Walter E. Meshaka, Jr., Brian P. Butterfield, and J. Brian Hauge

2004 Krieger Publishing Company, Malabar, FL

(1-800-724-0025)

ISBN 987-1-57524-042-8

166 pages/Cloth \$34.50

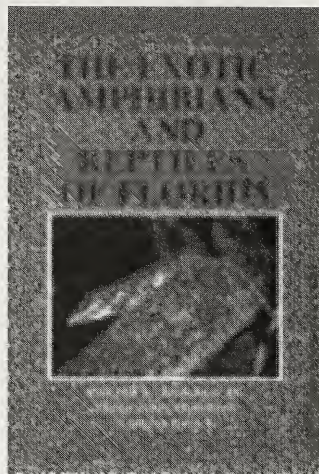
Florida contains more exotic amphibians, turtles, reptiles, and crocodilians than any other U.S. state. Illustrated species accounts detail the history and nature of each, the mode of dispersal, natural history, and present-day habitat and geographic distribution in the state. The impact of these animals is measured by their presence in natural systems of Florida and predator-prey interactions with native and other exotic species.

The authors update the list of the documented exotic species in Florida and provide a progress report on new and published natural history information for each established species. An afterword examines the role people have played in the success of these species. The 40 taxa that have established breeding populations in Florida and that are covered in this book consist of 32 species of lizards (including 11 geckoes and 8 anoles), four species of frogs and toads, two species of snakes (including the Indian or Burmese Python), one species of turtle, and one species of crocodilian.

This excellent book is an essential addition to the library of any herpetologist.

For greater comprehension and ease of use, this book adopts the standard common names for exotic species as they appeared in the "Peterson Field Guide to Reptiles and Amphibians of Eastern and Central North America Third Edition & Third Edition Expanded" by Roger Conant and Joseph T. Collins, and as recently published and maintained by The Center for North American Herpetology (Collins & Taggart 2002, Standard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Crocodilians. Fifth Edition).

Review from: The Center for North American Herpetology, Lawrence, Kansas <http://www.cnah.org>



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An Updated Guide to Herpetology Terminology

DICTIONARY OF HERPETOLOGY

Harvey B. Lillywhite

Foreword by Roger Conant

Orig. Ed. 2008 384 pp. ISBN 1-57524-023-8 \$112.50

Following the historical precedent of Peters (1964), the new updated *Dictionary of Herpetology* provides a comprehensive, single-volume dictionary, with selected cross-referenced entries to clarify the many technical terms and concepts that pertain to herpetology. The *Dictionary* provides a complete collection of words that are central to understanding the biology of amphibians and reptiles, offering concise and easy-to-use readable definitions in an A-to-Z format that contains 11,358 entries. This reference is essential for students, professionals, breeders, or anyone who is interested in herpetology and its many interdisciplinary connections. The new *Dictionary* emphasizes terminology related to anatomy, physiology, systematics, evolution, and other disciplines, including newly emerged fields that are relevant to the study of amphibians and reptiles.

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Training Tips

By

Angela Binney¹ and Kim Kezer², ATC Co-Chairs
¹Disney's Animal Kingdom, ²Zoo New England

The AAZK Animal Training Committee strives to support the mission of AAZK, Inc. by providing information and learning opportunities for animal care professionals to facilitate the use of operant conditioning and other training techniques, to achieve behavioral management goals and excellence in animal care.

Karen Pryor, in her book *"Don't Shoot the Dog"*, provides a useful list of training tips that she calls the 'Ten Laws of Shaping' (1985). These 'laws' can be applied to just about all types of training exercises. They serve as great little reminders for us as we move forward in our daily routines, especially if posted in the work area. Following the theme of Pryor's list, we would like to mention a few training tips or things to think about while planning your training sessions.

For this month we want to focus on ways to make the most of your time during training sessions and keep sessions productive. We have four thoughts that should help with this:

- A) **Plan each session in advance:** What do you want to accomplish today? Set a goal for each session so that you know what you would like to achieve. You can just do this in your head or with a short conversation with your training partners. It does not have to be elaborate or in writing. Basically, you should know what you plan to reinforce and how you plan to end the session. What training techniques will be used? You also need to know what you plan to do if the animal does not respond in the desired way or if a sudden breakthrough occurs and progress is made. Though minor adjustments in your approach may be required, depending on the animal's response, try to avoid making radical changes mid-session as this might be confusing to the animal and distract you from your goal.
- B) **Keep sessions short:** As a trainer, it is a good idea to know your focal species and individual. This includes developing an understanding of the attention span of the animal (or group) you are training. Keep sessions shorter than the animal's attention span, so that each session is ended at the height of their focus and not when their focus has decreased or ended. This way, they are reinforced for their best level of focus and when they are performing at their peak. This technique can help maintain, or even increase, performance levels or energy in future sessions.
- C) **Stay focused:** Karen Pryor states this same concept as, "Do not interrupt sessions gratuitously" (1985). This relates to interruptions such as radio calls, casual conversations or even discussing the progress of the animal mid-session. Part of the reinforcing quality of a training session is the individual attention an animal receives during the session. Taking this attention away from the animal unnecessarily could be interpreted by the animal as punishment. It also can confuse the animal, as it is looking to you for cues while trying to determine what you want it to do next. If you are adding distracting conversations and hand gestures, the animal may become confused and lose interest. Focus 100% on the session until it is over. Reinforce the animal at the end and let the animal know the session is over (however you normally do this – by walking away or giving a 'release' cue, etc), before conversing with others.

D) Choose the most productive time for sessions: Select a time that works best for you and your training subject. If you are not focused and energetic, it can affect your session. Choose a time when the animal is not likely to be distracted by excessive hunger, weather conditions or social drives. Some animals focus best in the morning; others train better in the afternoon. Some train better before their diet; others need a little food to calm their hunger before they can focus on training. If you are new to training the individual, determine the best time to train by studying its history and habits. Note attention or focus energy in training logs and make adjustments as needed. On days that you (or the animal) are feeling a little distracted, try to keep it short and simple, or just do a play session.



A well focused lion and trainer!
(Photo by K Kezer, Zoo New England)

If you consider these four training tips together, you can increase your training productivity. You may randomly see more tips like these in future ATC column entries as space allows. The AAZK Animal Training Committee (ATC) also has several training resources available on the AAZK, Inc website (www.aazk.org, look for the *Committees* link). If you have a specific question about animal training you are also welcome to contact us by way of the website link.

Reference:

Pryor K. [1985]. Don't Shoot the Dog. Bantam Books, New York. Pp. 54-66.

2007 AAZK Conference Proceedings Now Available for Download

The papers, posters and workshop summaries from the Galveston, TX 2007 National AAZK Conference are now available to download from the Member's Only Section of the AAZK website (www.aazk.org) They are available either as a complete download of all materials or as individual papers in pdf format. Proceedings will not be published in hard copy, so this will be your only way to access these materials. If you are not currently registered on the Member's Only Section of the AAZK website, you are encouraged to do so soon. You must be a current member of AAZK, Inc. in order to gain access to this section. Besides the Conference Proceedings, there is also lots of other good information available only to AAZK members in the Member's Only Section. See Scoops & Scutbutt from the March 2008 issue of *AKF* for further information on what is currently available there. The AAZK Board, Staff and Committees will continue to add information to this section. So check back often to see what's new!

The Animal Training Committee Presents

Training Tales...



Where you can share your
training experiences!

Just a reminder, submit your "Training Tales" and experiences in operant conditioning to share with *Animal Keepers' Forum* readers. This opportunity provides a convenient outlet for you to exhibit your training challenges, methods and milestones with the AAZK member network. Please submit entries based on the following guidelines:

- a) *Submit a brief description of a training project at your zoo (500 words or less, in text or bullet points). Details should include the following:*
 - *Define the training goal*
 - *List important steps*
 - *Timeline used*
 - *Tips you learned along the way*
- b) *Include 1-2 digital photos (jpg or tif) that clearly depict the animal in the learning process or performing the desired goal (list source and photographer of each image).*

Please send entries or questions to: Jay Pratte at jpratte@zooatlanta.org (use Training Tales Entry as the subject line). Happy training!

Do You Want Fries With That? Python Immobilized After Eating Zoo Deer

TIRUPATI, India — A python in southern India got more than a mouthful when it ate a six-month-old deer.

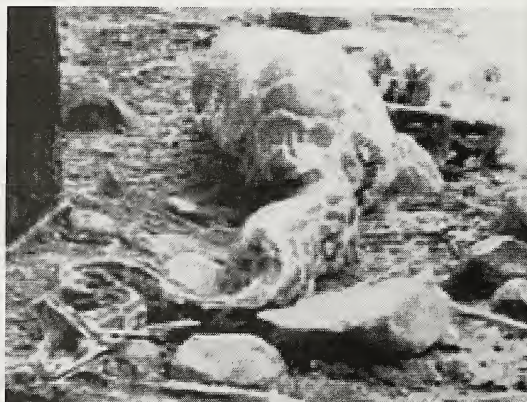
The snake snuck into a deer enclosure at a zoo and swallowed the much-larger animal.

Zoo officials said the snake gobbled the deer whole, without leaving a trace.

The python was so full, he couldn't move after eating the deer.

Zoo officials packed the snake up and shipped it to a forest reserve, presumably to spend some weeks digesting its huge meal.

Source: ZooNews Digest



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November/December 2007

*The Journal of the American
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Table of Contents

Acknowledgements - Susan D. Chan, Managing Editor, *Animal Keepers' Forum* • *Preface* - Ed Hansen, Executive Director, AAZK, Inc. • *Forward* Kris Vehrs, Executive Director, Association of Zoos & Aquariums • *Introduction* - W.K. Baker, Jr., Director, Abilene Zoological Gardens, Abilene, TX • Crisis Management Planning in Zoological Institutions - *Geoff Underwood, Stirling, South Australia* • Disease Risk Communication and Highly Pathogenic Avian Influenza - *Robyn Barbiers, D.V.M., Lincoln Park Zoo, Chicago, IL* • Developing a Weapons Team for Dangerous Animal Emergencies: Organization and Training. - *Norm Piwonka, Departmental Technical Analyst and Ken Kaemmerer, Curator of Mammals, Dallas Zoo, Dallas, TX* • Who's Afraid of the Big Bad Wolf? Dealing with a long-term, high-profile animal escape - *Jennifer Barnett, Director of Wildlife Management, Binder Park Zoo, Battle Creek, MI* • Chemical Restraint of Exotic Animals in an Emergency Situation. - *Marilynn M. Baeyens, DVM, Veterinarian, Little Rock Zoo, Little Rock, AR* • The Veterinary Role as First Responders to a Medical Emergency in a Crisis Management Situation. - *W.K. Baker, Jr., Director, Abilene Zoological Gardens, Abilene, TX* • Critical Incident Stress Management: A Proven Tool for Addressing Staff Needs After a Traumatic Event - *Lisa Fitzgerald and Gary Sanchez, Dallas Zoo, Dallas, TX and Jay Pratte, Zoo Atlanta, Atlanta, GA* • Developing a Program for Dangerous Animal Emergencies: Procedures for Animal Escape, Unauthorized Person in with Dangerous Animals, and Unified Command System - *Ken Kaemmerer, Curator of Mammals, and Norm Piwonka, Departmental Technical Analyst, Dallas Zoo, Dallas, TX* • Dive Safety in Zoos and Aquariums - *Gil Falcone, Senior Dive Safety Officer, Monterey Bay Aquarium, Monterey, CA* • Wildfire! One Facility's Response and Lessons Learned - *Chuck Brinkman IV, Professor, Moorpark College, the Staff of America's Teaching Zoo and the Students from the Classes of 2004 and 2005* • Keep Communication Equipment Powered in an Emergency, Part 1 What to Put in Your Emergency Power Kit - *Thomas Shaddack, TechSoup.com* • Keep Communication Equipment Powered in an Emergency, Part 2 How to Convert Your Devices to Run Off Batteries - *Thomas Shaddack, TechSoup.com* • The Terrorist Threat to Zoological Institutions - *W.K. Baker, Jr., Director, Abilene Zoological Gardens, Abilene, TX and Commander W.S. Graves, U.S. Navy, Retired* • Hurricane Preparedness: Lessons Learned from Hurricane Katrina - *Elizabeth E. Hammond, DVM, Lion Country Safari, Loxahatchee, FL and Daniel K. Maloney, General Curator/Life Sciences, Zoos Victoria, Parkville, VIC, Australia* • Training Dangerous Animals Safely is No Accident - *Gary M. Priest, Curator-Applied Animal Behavior, San Diego Zoo/San Diego Wild Animal Park/ Zoological Society of San Diego, San Diego, CA* • Firearms Use and Training in AZA Institutions - *Dan Beetem, Director of Animal Management, The Wilds, Cumberland, OH* • Aspects of a Safety Program for Zoos and Aquarium Facilities in the United States - *Ed Hansen, Risk Management Coordinator, City of Tucson, Tucson, AZ*

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Animal Keepers' Forum, Vol. 35, No. 8 325

Flamingo Holding Floor Washer

By Chris Varnon, Bird Keeper
Birmingham Zoo, Birmingham, AL

Seventeen adult *Phoenicopterus ruber*, one adult *P. chilensis* and 13 juvenile *P. ruber* flamingos were housed in an outdoor flamingo exhibit alongside several swans and ducks. The exhibit was open and not protected by an electric wire so that visitors could better see and interact with the birds. Due to risk of predation, the flamingos were shifted into an adjoining holding space overnight. The flamingos were fed in the holding area and shifted willingly.

The holding area is about 18 x 8 feet (~5.48m x 2.43m). The floor is concrete covered with a layer of Sani-Tred®. Sani-Tred® is slip-resistant and a softer alternative to bare concrete. The floor slopes into a small pool about 7 x 4 feet and seven inches deep that contains an overflow drain (2.13m x 1.21m x 17.78cm). The flamingos are held in this area from about 1700hrs – 0800hrs. The floor and pool become very dirty overnight. The newly installed Sani-Tred® floor covering was stained after only a few days. Daily scrubblings with soap and water would not remove the discoloration.

All 13 juvenile flamingos displayed varying signs of hyperkeratosis. Many treatments were tried. Though we did not consider dirty conditions the cause of the hyperkeratosis we wanted to increase cleanliness to decrease risk of infection or other complications. We did not want dirty conditions to irritate their feet any further.

After a suggestion from former curator Tim Snyder, now with the Brookfield Zoo, and a prototype device made from a broken sprinkler, we devised an automated water system that would clean the floor overnight and increase sanitation.



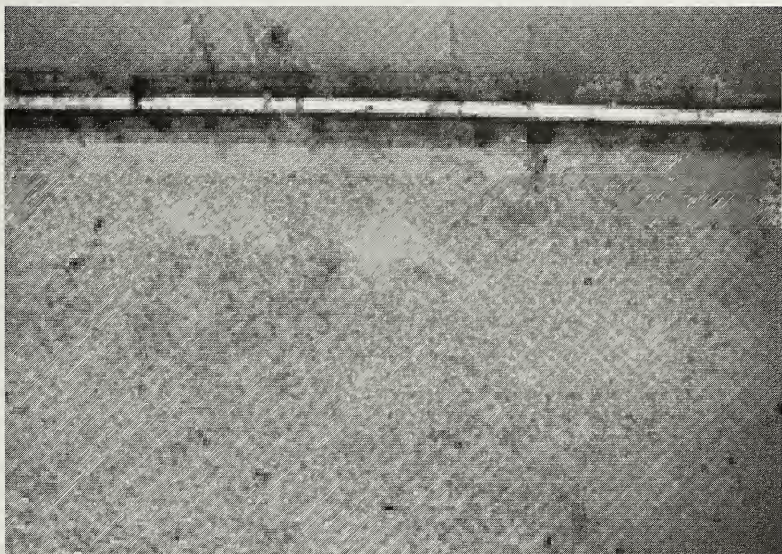
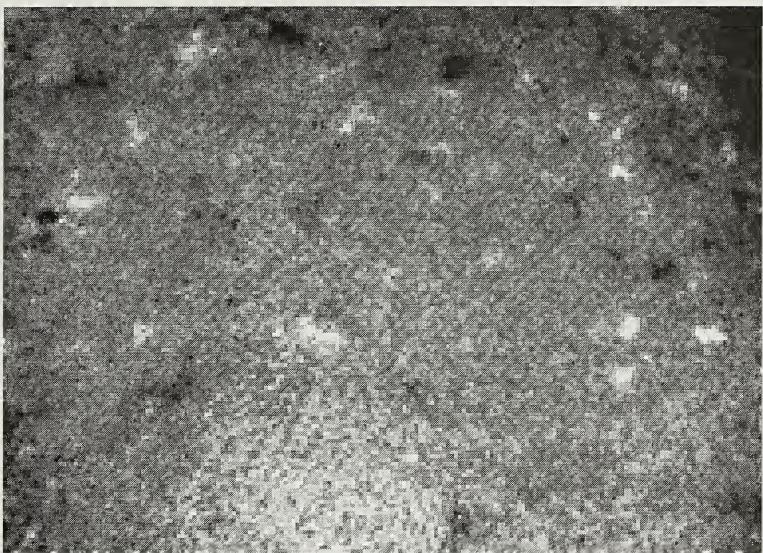
Seventeen feet of 3/4 schedule 40 PVC pipe was mounted to the wall opposite of the pool. It was raised about five inches (12.7cm) off the ground. Many 1/8-inch holes were drilled in the bottom of the pipe. We placed around 50 holes about four inches (~10cm) apart and still maintained water pressure. An elbow, seven feet of pipe, and a three-foot hose connected the pipe at the floor to an automatic water timer attached to the water line at the ceiling. The water timer was set to turn on one hour after the birds were locked inside and run for 40 minutes every 4 hours. The initial results were not great, after patching several holes, and drilling new holes the washer covered significantly more ground.

We drilled the holes in the pipe first and then mounted it to the wall with the holes facing directly down. After installation we discovered that it was not the overall amount of water that mattered, but the placement of each individual stream of water. Because of inconsistencies in the curvature of the floor, water was not equally distributed and the washer was originally not very effective. Many of the holes poured water to the same location. After this

experience we would suggest mounting the pipe first, and then drilling the holes when the water is running. This way you can see how the water flows and use this to adjust the placement and angle of the next hole. Adjust each hole to cover an area that the previous holes do not. By drilling one hole at a time you can maximize the use of the water.

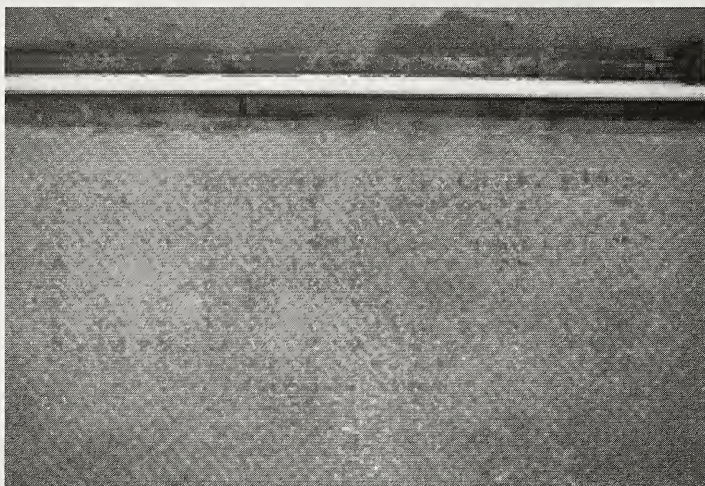
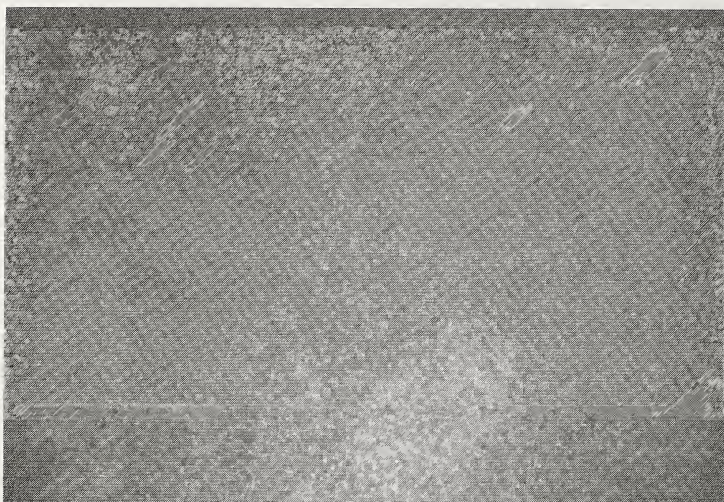
After installation and modifications were complete we saw an immediate change in the cleanliness of the holding area. Approximately 60% of the 144-square-foot (~13.37 sq.m) holding area was cleaned using only 17 feet (5.18m) of pipe. The water in the pool was also cleaner. Though there still were some areas that the washer did not reach, the flamingos were not forced to stand on waste overnight. After five weeks the dark stains on the floor receded from almost all of the holding area, even areas that were not well covered by the washer.

Following are pictures of the floor before and after the washer was installed. The pictures below were taken before the washer was installed; the pictures on the next page were taken after the washer was in use. The first two pictures were taken before the floor was cleaned.



Photos provided by the author

The second set of pictures was taken after the floor was cleaned. The floor was stained with a dark color before the washer was in use. After a few weeks the washer removed most of these stains. It was important to remove this build-up because the Sani-Tred® floor covering cannot be bleached.



An automated floor washer is a useful way to clean a flamingo holding area overnight. The parts are inexpensive and easy to find. The washer can easily be installed in less than a day. This design can be used in any area with a sloping floor leading to a pond. It can be used with any species that would not be irritated by the water.

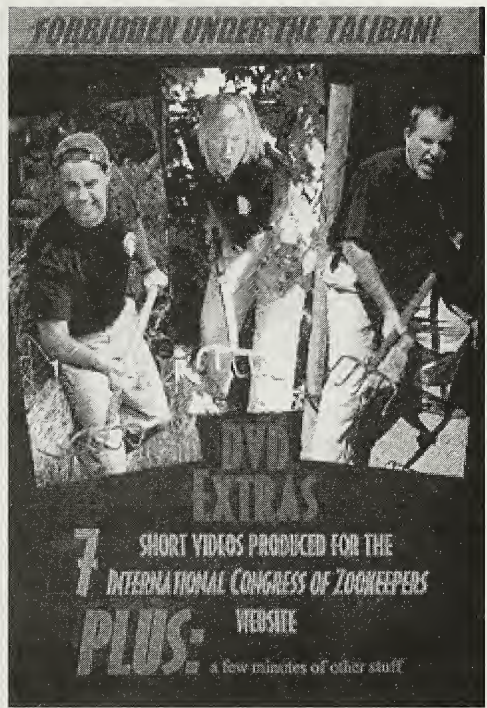
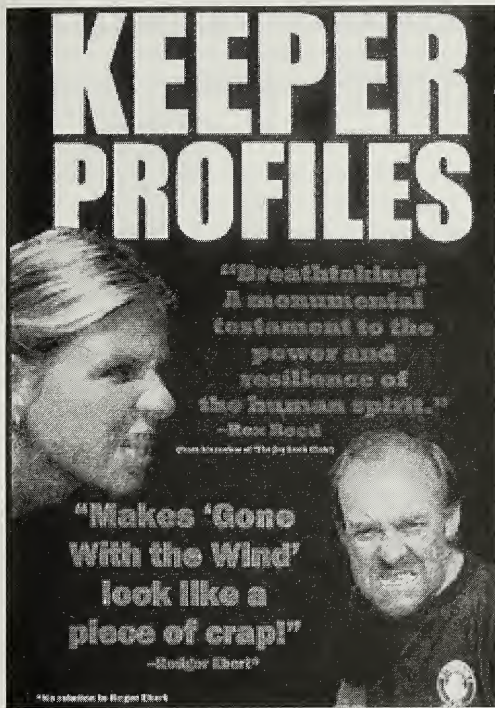
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Conservation/Legislative Update

Column Coordinators: Becky Richendollar, North Carolina Zoo
and Greg McKinney, Philadelphia PA

This month's column was put together by
column co-coordinator Becky Richendollar



Tragedy Stalks Animals at Vancouver Zoo - A golden eagle (*Aquila chrysaetos*) performing in the raptor show at the Vancouver Zoo met a tragic fate when the performance was interrupted by some harassing crows.

The eagle, named Sky, has been performing at the Greater Vancouver Zoo for less than a year. She was taking part in a show when the crows attacked and began driving her away from the arena. The eagle was forced to land inside the lion exhibit, where she became disoriented. Two lionesses snuck up behind her, but failed to catch the bird. Unfortunately, a third lioness pounced and caught the bird. Witnesses said the eagle tried to fly away, but the lions were on her in a matter of seconds. Jody Henderson, a zoo spokesperson, said that there was nothing zoo staff could have done to prevent the incident.

This tragedy follows an incident in late May that resulted in the death of a spider monkey (*Ateles geoffroyi*). Jocko, a male spider monkey was killed during a break-in at the zoo. Jocko died after suffering a fractured skull and internal bleeding. Mia, his female companion was stolen during the break-in and has not been recovered. The two monkeys were both 17 years old and had lived together at the zoo for 15 years. Source: www.cbc.ca, June 29, 2008

Spain Gives Rights to Apes - Spain has become the first country to give legal rights to apes. The Spanish parliament's environmental committee voted to approve to commit the country to the Great Apes Project, designed by scientists and philosophers who say that humans' closest relatives also deserve rights.

The resolution calls on the government to promote the Great Apes Project internationally and to protect apes from "abuse, torture, and death". Reactions to the vote were mixed. Many Spaniards were perplexed that the country should consider it a priority when the economy is slowing sharply and Spain has been rocked by violent fuel protests. Others thought it was a strange decision, given that Spain has no wild apes of its own.

Some critics questioned why Spain should afford legal protection from death or torture to great apes but not bulls. Nevertheless, officials said that the vote would set a precedent, establishing legal rights for animals that could be extended to other species. The resolutions will outlaw harmful experiments on great apes, though activist say that they have no knowledge of any being carried out in Spain. It will also make keeping great apes for circuses, TV commercials or filming a criminal offense. Keeping apes in zoos will remain legal, but conditions for the 350 apes in Spanish zoos will have to improve. Animal rights activists say that 70% of apes in Spanish zoos live in exhibits that do not meet the requirements of the new law. The philosophers Peter Singer and Paola Cavalieri founded the Great Ape Project in 1993, saying that hominids such as chimpanzees, gorillas and orang-utans should enjoy the right to life and freedom and not to be mistreated. Source: *The Times*, June 27, 2008

Przewalski's Horse Gets Reverse Vasectomy -The first successful reverse vasectomy on a Przewalski's Horse (*Equus przewalskii*) was performed at the National Zoo. The horse, named Minnesota, was vasectomized in 1999 at a previous zoo, arrived at the National Zoo in 2006.

The Przewalski's Horse was native to China and Mongolia but were declared extinct in the wild in 1970. There are now approximately 1,500 living in zoos and in several populations in Asia.

"The major challenge we faced was that this procedure had never been performed on an equid, let alone a critically endangered species," said Dr. Budhan Pukazhenthil, a reproductive scientist at the National Zoo's Conservation and Research Center in Front Royal, Va.

The team sought out Dr. Sherman Silber, a St. Louis-based urologist who pioneered microsurgery for reverse vasectomies in humans and had been successful in vasectomizing and then subsequently reversing vasectomies in South American bush dogs at the St. Louis Zoo.

"Although our team is very experienced in horse anesthesia and surgery, by using the specialized professional skills of Dr. Silber, we greatly increased the likelihood of success," said Dr. Luis Padilla, associate veterinarian at the Conservation and Research Center.

"I've always dreamed of using my expertise to contribute in some way to wildlife survival," said Dr. Silber. "It was exciting to pioneer a new procedure for which humans were the 'test animal.'"

The zoo hopes to put Minnesota with a female later this year. *Source: www.wjla.com, June 16, 2008*

Bloodthirsty Zoologists Use New Techniques - Veterinarians at the London Zoo and Whipsnade Zoo care about their animals enough to give them a kiss. That is, a kiss from a species of assassin bug known as the "kissing bug" (*Triatoma protracta*). These bugs are allowing veterinarians to obtain stress-free blood samples, without the use of anesthesia. *Science*



Kissing Bug sucks blood from a giraffe.

(Photo: BBC News)

"It might take somewhere between ten and 30 minutes to get a decent sample dependent on how hungry the bug is, how quickly it finds a blood capillary and how thick the skin of its host is."

Veterinarians hope to expand the use of kissing bugs into other species. They hope the bugs will provide a means of collecting blood samples from smaller, more difficult animals, whose veins are sometimes inaccessible. *Source: National Geographic News, May 29, 2008*

Freaky Frogs Grow Claws for Defense - A biologist at Harvard University has discovered some species of frogs with a very unusual defense mechanism. David C. Blackburn came across the frogs while doing fieldwork in Cameroon. When he picked up one of the frogs, it began kicking violently. "I was surprised to come across frogs that can give you such a nasty scratch when you pick them up," Blackburn said. "When I got back to the U.S., I used preserved museum specimens to study the anatomy of these claws, because it was obviously pretty unusual."



Przewalski Horse

(Photo: copyright-free-photos.org.uk)

After going through over 60 species of African frogs, Blackburn found that at least 11 species pierce their own skin with toe bones, sprouting sudden claws with which to attack predators. These frogs have bones at the ends of their toes which are connected to smaller and sharper free-floating bones. These smaller bones are connected to the rest of the foot by a collagen sheath. When attacked, these species of frog flex a certain foot muscle, which causes the small, sharp bone to come out of the sheath and pierce the skin, revealing a "claw".

The frogs, all in the genera *Astylosternus*, *Trichobatrachus*, or *Scotobleps* use this method only when threatened as the action causes trauma to the frogs' skin. Source: *National Geographic News*, June 24, 2008

Apes Prefer a Warm Meal - A recent taste test conducted by researchers at Harvard University found that great apes seem to prefer cooked food over raw food. Victoria Wobber, lead author of the study, conducted multiple food tests using captive chimpanzee, bonobo, gorilla, and orangutan populations in the Congo Republic, Europe, and the United States. The tests involved offering the animals a choice between raw and cooked carrots, sweet potatoes, white potatoes, apples, and beef.

All of the apes preferred the cooked food over its raw counterpart, with the exception of apples and white potatoes. The apes showed no preference between the cooked or raw apples and white potatoes. Scientists speculate this may be because cooking apples or white potatoes does not enhance their sweetness.

In another experiment, the researchers showed that apes would not eat raw, grated carrots. Instead, they showed a strong preference for carrots that had been cooked and mashed. Source: *Discovery News*, June 24, 2008

Foreign Tourists Threaten Snow Leopards - Despite a complete hunting ban across Afghanistan since 2002, snow leopard (*Uncia uncia*) furs can be found for sale on international military bases and at tourist bazaars. Foreigners have ready cash to buy the pelts as souvenirs and impoverished Afghans break poaching laws to supply them.

Asked if it was easy to send the furs back home, one shopkeeper said: "We hide the fur inside blankets and send it back to your country."

Anyone caught knowingly transporting a fur across an international border is liable to a large fine. In the United States, it could result in a \$100,000 fine and one year jail term. It is hard to know the exact numbers of snow leopards left in Afghanistan after the last three decades of conflict, said Dr. Peter Smallwood, Afghanistan country director for the New York-based Wildlife Conservation Society (WCS). However, experts believe that only 100 to 200 remain in Afghanistan. In comparison, Bhutan has the same number but has three times less the area of habitat. The estimated number of snow leopards in the wild worldwide is between 3,500 and 7000, according to the International Snow Leopard Trust (ISLT). Source: *Reuters*, June 27, 2008



Snow Leopard

(Photo: Milan Trykar/Snow Leopard Trust)

The State of Our Ecosystems - A new report has been released by the federally funded environmental think tank, The Heinz Center, entitled "The State of the Nation's Ecosystems" The report states that U.S. freshwater resources are being continually depleted and polluted. Between 1960 and 2000, freshwater withdrawn for consumption increased 46 percent. Meanwhile, drought and melting glaciers have reduced the flow of many water sources. Contaminants, such as pesticides, fertilizers, and medications, have been detected in "virtually all" freshwater streambeds, the report said. Streams are

contaminated above benchmarks set to protect aquatic life in 57 percent of farmland and 83 percent of urban and suburban areas. These pollutants have contributed to growing “dead zones” where aquatic life cannot survive. Contaminants at concentrations above the benchmark for human health are found in 7 percent of urban and suburban streams. Nitrate, a runoff of agricultural fertilizers, exceeds federal drinking water standards in 20 percent of farmland groundwater wells.

On a more positive note, many ecosystems, especially forests, have remained intact due to conservation and sustainable management. Timber growth has exceeded harvest-half of U.S. timberland is younger than 60 years old-which has allowed forests to store more of the greenhouse gas carbon dioxide in recent years than a decade ago.

However, wildlife within those ecosystems faces widespread threats. One-third of native plant and animal species, excluding marine species, are at risk of extinction. Global warming is shifting the climate outside the threshold that many native species can tolerate, which provides an advantage to invasive species that have more general survival requirements. Invasive species are also out-competing native species for resources. More than half of U.S. freshwater watersheds contain at least 10 non-native fish species, and only two watersheds have no reported invasives, the report says. The full report is available for purchase from Island Press. *Source: enn.com June 27, 2008*

First Beaver Dam in England for Centuries - A pair of beavers (*Castor fiber*) have built what is believed to be the first dam in England for centuries. The animals were hunted to extinction in England and Wales during the 12th century and disappeared from the rest of the country 400 years later. However, two beavers from Germany were introduced to a river enclosure in Devon last year. This year, the pair have built a 6ft dam with mud, bark and twigs on the River Tale at Escot House, near Ottery St Mary.



One of the beavers that has settled on the River Tale (Photo: Telegraph.co.uk)

John-Michael Kennaway, who owns the estate, has been working to reintroduce the animals on the site for three years. He said that the beavers may be rearing young, known as kits. The beavers are kept in an enclosure to prevent them from escaping into the wild.

“The male beaver has been spotted feeding alone some distance from the lodge, whereas the female seems keen to stay close to their home,” he said. “This might suggest that she has young inside, but we won’t know until at least late July when they’re ready to come outside.”

Mr Kennaway said: “We haven’t had beavers here for 800 years because they were hunted to extinction. Now, a year after they came to Escot, they have built a dam and we think they are breeding. We won’t know for sure for a couple of months but it is very encouraging. It really is a superb structure - quite a feat of engineering for two small beavers.”

Over the last few years, 15 beavers have been re-introduced to England, but these have lived on lakes and had no need to build a dam. In 2002, a group of nine beavers were re-introduced in England at Ham Fen, Kent. In 2005, another six European beavers were released on an enclosed site in South Cerney, Gloucestershire. More recently, another population was set up at Martin Mere in Lancashire. Beavers have also been released on private land in Scotland. *Source: Telegrasph.co.uk 6-28-08 By Urmee Khan*

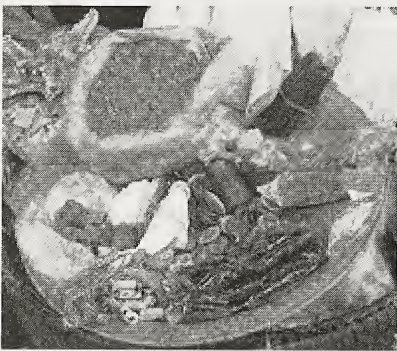
Healthy Living: wildlife use in traditional medicines in Cambodia and Viet Nam - TRAFFIC published in early July the results of field studies carried out between 2005 and 2007 examining the use of traditional medicine systems in Cambodia and Viet Nam. The reports seek to improve the understanding of the use of natural resources in traditional medicine and enhance the management and regulation of traditional medicine networks to promote conservation and sustainability.

The scale of traditional medicine use in Cambodia and Viet Nam is significant, and both plants and animals play a critical role. In Cambodia, over 800 types of plants (approximately 35% of the country's native species) are currently used in Traditional Khmer Medicine while in Viet Nam more than 3900 species of flora and 400 species of fauna are used in traditional remedies.

TRAFFIC's findings are published separately as: An overview of the use and trade of plants and animals in traditional medicine systems in Cambodia (PDF, 4.7 MB) and An overview of the use of plants and animals in traditional medicine systems in Viet Nam (PDF, 1.2 MB).

The first examines the use of wildlife products in Traditional Khmer Medicine and its possible impacts on the biodiversity of the country and wider region. The second presents the findings of traditional medicine market surveys conducted in north and south Viet Nam.

Significant numbers of Cambodian and Vietnamese citizens currently use traditional medicine. Recently, trade in traditional medicine has benefited from the relaxation of international trade barriers and free market economies.



A selection of animal and plant products on sale as traditional medicines in Cambodia
(Photo: Mark Bezuijen)

"Traditional Medicine systems in Cambodia and Viet Nam are important components of both national healthcare systems, and are often the only means of healthcare for rural communities," said Thomas Osborn, TRAFFIC's Forest Trade Officer in Viet Nam.

"Understanding which animal and plant species and products are used and traded, and their underlying trade mechanisms, can provide a useful tool to assess the sustainability of such trade, and provide an 'early warning' for species that are threatened by it," he added.

Increasing demand for traditional medicine has important implications for the conservation of flora and fauna. There is growing evidence to suggest that many plants and animals have become more difficult to obtain in the wild, and a number of them are listed as species of conservation significance. In Cambodia, 80 of the plants species used in traditional medicine are considered high priority for national conservation, whilst in Viet Nam, many of the animals openly offered for sale (bear, rhinoceros, elephant and tiger) are threatened and protected under international legislation. Currently 71 of the animals traded and used for medicinal purposes in Viet Nam are listed on the IUCN Red List of globally threatened species.

The reports recommend further research and increased public awareness and urges further action to improve information gathering and sharing amongst the numerous agencies, institutions and organizations involved in the harvest, trade and use of traditional medicine.

TRAFFIC's surveys and the production of the reports were generously funded by WWF-US. Article originally appeared on TRAFFIC (<http://www.traffic.org/>). Source: *TRAFFIC INTERNATIONAL 7-1-08*

Lions at Kenyan Park Being Wiped Out - National Geographic Puts Up \$150,000 to Pay Off Local Herdsmen - Conservationists have raised the alarm that lions (*Panthera leo*) in Kenya's Amboseli National Park face extinction within a few years unless action is taken to help them.

"The situation has reached a critical level," said Terry Garcia, executive vice president at National Geographic Society. "Unless something is done immediately, there will be no more lions in this part of Kenya, which would be a tragedy."

Fewer than 100 lions are estimated to remain in the 2,200-square-mile region at the base of Mount Kilimanjaro on the Kenya-Tanzania border, the society said. Lions are a major attraction at Amboseli,

a popular visiting spot for tourists. A major reason for the decline of the lions, researchers say, is spearing and poisoning by local Maasai, whose society depends on raising cattle.

"Tensions have always been high between Maasai tribes and the lions in this region where the economy is cattle-dependent," said Dereck Joubert, a National Geographic Society conservationist in Kenya. "Maasai depend on cattle to survive. They view themselves as stewards of the cattle. When their animals are killed, their solution is to get rid of the lions. We need to be able to immediately compensate the Maasai for cattle losses in order to stop the killings."



Ambroseli lion (Photo: Melvin M. Payne, NGS)

National Geographic announced it is making an emergency grant of \$150,000 to the Maasailand Preservation Trust to support a compensation fund for herdsmen whose livestock are killed by lions in and around Amboseli. It will also raise additional money from the public for the program.

Such compensation plans have succeeded in other areas, according to the Kenya-based conservation group Living with Lions.

Between 2003 and 2007, a total of 63 lions were killed in properties owned by the Maasai, Kuku Group Ranch and Olgulului Group Ranch, said Laurence Frank, director of Living with Lions. "On Mbirikani Ranch, where compensation began in 2003, only four lions were killed due to predator-livestock conflict during the same period."

Frank said that in 2006 there was a sharp spike in killings in Maasailand. "Two years later, rates are not as high, but the killings continue to be bad enough that if something is not done immediately, we will see these lions go extinct locally in just a few years."

"It is hard to imagine this part of Kenya devoid of lions and the deep lion roars that so symbolize the savannas," added Joubert.

In a statement, the society also noted that lions are sometimes the victims of ritual killings by young Maasai men. "Slaughtering a lion remains a rite of passage for some Maasai warriors, who test their prowess with spears," the society said. "The ritual involves cutting the tail off the slain lion and then visiting seven villages to dance with the tail in an effort to impress the women."

"Thankfully, as a result of educational programs in the region we have started to see instances of the ritual being rejected," Bonham said. "When the warriors arrive at a village, they are being sent away."

But lions are also being killed for at least two other reasons.

"Sadly, in the last two years we've also started to see lion claws and teeth sold on the black market to tourists," said Bonham.

And Frank noted that "lions also are killed to garner attention from the outside world. "If the Maasai have grievances that they feel have not been given the attention deserved, they will, in some cases, go on a lion- or elephant-killing spree, hoping this will make the authorities take notice and address their concerns."

That happened in the early 1990s, the society stated, when Maasai completely eliminated lions from Amboseli National Park. "In that instance, the animals were able to come back over time with the help of lion populations from neighboring areas," the society said.

"If we allow lion populations to drop too low in Maasailand, the difference this time is that there is no source of replenishment from surrounding areas, which would make the future of the Maasai lions today much less certain," said Frank. Source: <http://www.msnbc.msn.com> < The Associated Press also contributed to this report. 6-12-08

An Update - Following is an update on the mysterious deaths of Cownose rays (*Rhinoptera javanica*) that was reported in this column in the June 2008 issue of *Animal Keepers' Forum*.

Zoo Has No Idea What Killed Rays - The Calgary Zoo still has no answer on what killed 40 cownose rays and will have to make a decision on whether or not to continue awaiting a lab's report on the cause of death.

In May, the rays died inexplicably months after the opening of a new hands-on exhibit.

Spokeswoman Laurie Herron said the exhibit's future is still up in the air. The zoo will have to decide whether to get more rays or some other aquatic animal. That decision, Herron estimated, will have to be made within the month.

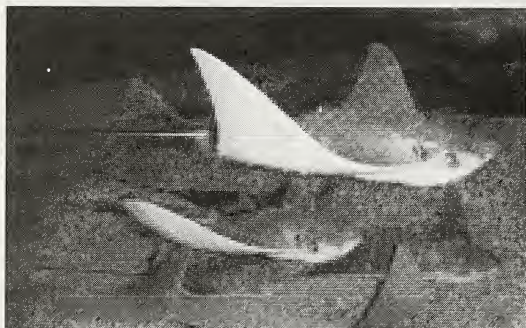


Photo: Calgary Zoo

"If they can find an answer (to what killed the rays), they'd rather do that then make a decision without an answer. At some point, they may be forced to do that. They'd like to feel like they've done everything they can to find out what happened."

Herron said the lab has ruled out microbacterial problems and disease, but is still doing organic and in-organic toxins tests.

"Our senior management team will probably ask them to continue on for a little while longer. I don't think they're ready to give up the search to see if they can uncover what it was. We were told early on by the lab that there are literally hundreds of thousands of compounds that are potentially dangerous to fish. It's a tough search."

In early July, the two surviving rays were moved back into the exhibit pool after it was cleaned and tested. Vets felt the exhibit's pool gave them more room to swim. The exhibit is behind a fence and manned by a staff member. *Source: Calgary Herald 7-13-08*

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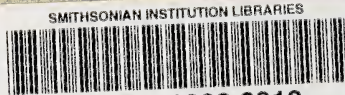
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